A collaborative-project memory tool for participatory planning

Conference or Workshop Item

A COLLABORATIVE-PROJECT MEMORY TOOL FOR PARTICIPATORY PLANNING

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Abstract: Technology is more and more providing planners and designer with tools and methods to collect and communicate spatial data and assist spatial analysis.

When we think about new technologies supporting planning we mainly think about GIS, urban modelling, simulation models and virtual reality. But many other challenges to the planning practice need for tools to support and improve planning activities. In this paper we discuss the need of new tools to support knowledge representation and knowledge sharing in participatory planning processes.

The paper describes the use of a hypermedia and sensemaking tool (Compendium) to structure the knowledge produced in a real participatory planning process. In the present application Compendium has been used not for real-time capturing but for a post-hoc analysis of a real participatory planning experience.

Compendium has been used to represent and reconstruct the group memory of consultation meetings in order to allow both the planning team and the citizens to navigate into the contents of those meetings.

Moreover the paper describes the main features and potential of the use of Compendium in Participatory Planning domain, and it describes the results of the group memory reconstruction. Finally the case study opens reflections on the need of new planning technologies supporting participatory knowledge generation, representation and management.

Keywords: Participatory Planning, Collaborative-Project Memory, Knowledge Representation, Sense-Making Tools

1. Introduction

Planning and Policy Making are no longer a homogeneous fields. They are challenging and complex practices of shaping the future of common spaces and resources that involve many policy areas and comprise different level of decision-making (at national, regional, city and neighbourhood leve). The result is a wide-ranging complex organizational system involved in governance activities. Moreover planning actions are being developed from professionals relying on an increasingly diverse set of theories, methods and tools. As a consequence, researchers and practitioners have begun to realize the importance of identifying and understanding the peculiar characteristics of each planning case and the special needs of the environment and planning system in which the planning actions and strategies will intervene.

Furthermore new governance directives envision new ways of governing that are more appropriate to the complexity of public policy and the diversity of local communities. As claimed in the last report of the JRF foundation new governance directives focus on issue and locality based approaches. Local policy issues should be studied in order to develop synergic solutions, involving partnerships with local agencies. Therefore planning practice should focus on the local and social impact of specific planning issue. For doing this general theory and methods are not suitable but on the contrary ad-hoc solution and strategy need to be identified case by case. Therefore planners need both new ways to study the planning case as a social processes and new ways to learn from successful examples, trying to reckon best planning strategies thus applying them in new planning cases.

This paper presents a method for developing knowledge about a planning process by creating a repository of project experiences.

We develop a framework for a system to capture relationships between the planning process and the knowledge resources used for making the planning design-decisions.

We then show how this information can be represented in a hypermedia database and we envisions several ways in which these information can be reused to improve the productivity and quality of the on going planning process efforts.

Furthermore we discuss the advantages of using such a system to develop knowledge about a planning process by creating a repository of process experiences.

2. Compendium: a Hypermedia and Sensemaking tool as KM environment

Compendium is a flexible software tool used in many different ways and organizational fields. It is an open environment in which singles and group can represent and explore relationships between information and meanings, building new personal or shared understanding about problems and topics. It offer a visual interface to represents different communication items (information, facts, ideas, questions, arguments, etc) in form of structured dialogues in which relationship between items show the flow of interactions and make sense of the contents of discussion. In this sense Compendium can help to represent groups' interactions and argumentations and to structure the knowledge generated all along the participatory process.

From the analysis of the recent state of the art (Selvin and Sierhuis 99), we can group the diverse Compendium uses in two main families : i. *in-real-time* and ii. *post-hoc* uses. This distinction mainly refers the work the user needs to do on-the-fly or post-hoc (during and after the meeting).

In the first family we count Dialogue Mapping (DM) and Conversational Modelling (CM) techniques. These techniques require high moderation skills either on-the-fly (for DM) or both on the fly and post-hoc (for CM techniques).

The first is mainly adopted in face-to-face meetings and Compendium is used for arguments' visualization and meeting moderation: the moderator (possibly assisted by an experienced *Compendium* user in charge of the mapping) maps the meeting (captures and displays discussion) in order to reach shared understanding about a problem. The process consists of both an incremental negotiation of meanings and the micro-agreements about problem representation (Conklin 2005).

Conversational Modelling (CM) has a balance between users' skills in mapping and modelling and the work in and behind the meeting room. In order to apply this technique a *Compendium* user needs to prepare templates, devoted to model the

meeting evolution and to structure the discussions, in order to help and drive the group to decide about and define design variables (criteria, alternatives, priorities, list of actions, etc). In this phase the user applies process modeling skills and he works behind the meeting room. In order to manage such meetings the CM practitioner needs to be experienced in meeting moderation and mapping, nevertheless the template driven moderation is a valuable support and makes the moderation work less dependent on the moderator skills.

Dialogue Mapping and Conversational Modeling are two techniques for collective sense making and these are 'real time techniques' for capturing meeting discussions and involving people in collective definitions and collaborative argumentation about problems.

In the second family, i.e. the post-hoc techniques, we count Knowledge Management oriented uses of Compendium. In these cases *Compendium* provides users with diverse features for managing knowledge, making sense of knowledge contents and using and reusing information in disparate knowledge works (hypermedia files and documents can be linked and enriched with comments, ideas, tags, etc).

KM oriented applications range from managing a PhD research (Selvin and Buckingham Shum 2005) to political debates representation (Renton and Macintosh 2007; Ohl 2007). In these latter cases *Compendium* has been used as a Computer Supported Argument Visualization tool oriented to represent a debate, making it easily exportable and eventually open for public discussion on the web. The main objective is to enlarge participation and deliberation about public policies. In these case studies *Compendium* has been used for post-hoc analysis and representation (mainly mapping) of political arguments. Contents are first gathered by interviews and/or public forums and then structured into argument maps, mainly following an IBIS model of argument representation (Conklin and Begeman 88).

In all post-hoc applications the work on information structuring is committed to a Knowledge Manager who has to organize the contents according to specific project objectives.

In the light of the examples reported above, *Compendium* can be defined as a hypermedia and knowledge management tool for individual and collective sense making. In the literature it is referred to as an approach to gather, structure, represent, and manage knowledge for individual or collaborative knowledge intensive works. In a Compendium approach knowledge objects (ideas, multimedia documents, artifacts, etc) are represented as nodes of a graph like structure; afterwards nodes are linked so as to organize contents and make-sense of individual and/or collective concepts and concerns.

What make Compendium different from other concept mapping tools are his hyper-textual and hyper-media features.

In compendium the hyper linking feature between multimedia knowledge objects is empowered trough two main features:

- Map node types and
- Transclusion links.

The combined action of these two features make hyperlink not constrained to linear explorations on a 2D canvas allowing transversal hyper-space linking of nodes. Fig. 1 shows an example of both these features.

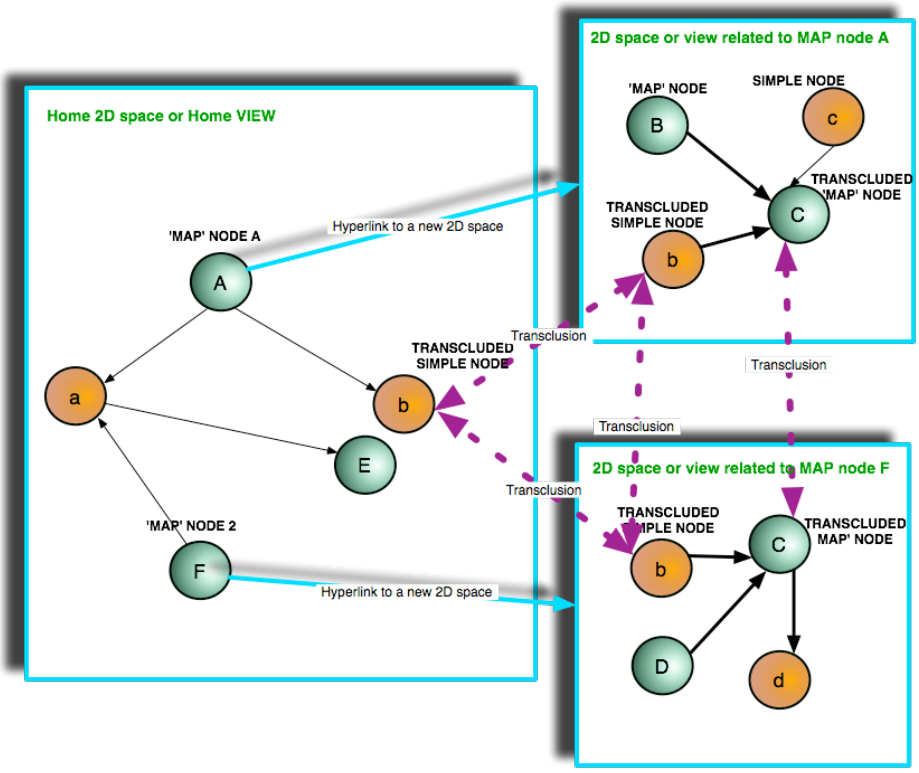

Figure 1: Hyper-spaces linking through MAP nodes and Transclusions in Compendium

A MAP node is an anchor that corresponds to a whole node (see MAP nodes in green in the Figure labelled with capital letters). Clicking on the anchor node (MAP node) you follow the link and open the 2D space in which other simple nodes and/or MAP nodes are internally linked building a horizontal node network (see in the picture the hyperlink to a new 2D space as a light blue link). If the 2D space contains a MAP node this node opens an external link to a new 2D space, which can be accessed clicking on the MAP node (the click causes the external link to be followed). We call this link external because it refers to knowledge object which are not included in the same database, being a database a collection of nodes not necessarily all linked. We mean for database the content of a 2D environment/canvas. Therefore a MAP node is not a map containing a 2D environment, it is instead an anchor node connecting to a 2D environment, which will be accessed and referred to that MAP node. MAP nodes normally have a label, which can be considered the *title or concept* associated to the hyper linked 2D space.

The second Compendium key feature is the Transclusion. Transclution is an external hyperlink between one node and an image of the same node in a new database. It is different from duplication or copy because the object remains just one, but it is visualized in two or more hyperspaces. In fig. 1 we can see two example of transclusion (cross-hatching links in the figure):

1) transclusion of simple nodes (orange nodes labeled with lower case letters in the figure); the same simple node "b" has been transcluded in three views (the home view, the view related to node A and the view related to node B. Double side arrows show that the user can move from one view to the other and then reverse.

2) translusion between two MAP node (see green node "C" in the figure; in this case nodes, when transcluded, can be organized in a different way, linked to different nodes or documents, moved freely in the 2D space without effecting the

position or links of the same node in the other spaces in which it has been transluded (see that in Figure 1 transcluded nodes have different positions and are linked to different nodes).

So the two functionalities (transclusion and map nodes) allow hyper-space linking of two kinds:

- Map nodes enable *node-2Dspace* linking, that is to say, linking a node in a database with a new 2D space.
- Transclusion enable *2Dspace-2Dspace* linking, that is to say a link between two spaces trough the same node (transcluding the same node in different databases; this options allow a node to be read in several hyperspaces).

This options are key in order to build an hypermedia environment to manage knowledge generated in a participatory planning project because they allow to structure and represent information and knowledge according to their multiple dimensions in multiple spaces. Furthermore these spaces can be linked between them in several ways and specific exploration paths can be suggested or allowed to the users. Ideally different path can be chosen for different audit.

3. San Pietro Piturno: an experience of neighbourhood regeneration policy initiative

The case study presented in this paper is an example of community engagement in a very local based initiative designed to address problem of social exclusion in a small neighbourhood in the south of Italy, called San Pietro Piturno(SPP). The initiative intended to provide a strategic vision for the area and in particular to identify local resources in terms of agencies and human capital. Main objective of the project was to enhance partnership actions and to develop collaborative initiatives involving agencies from the statutory, voluntary, community and private sectors.

The case study has been built around a participatory planning experience carried out in April 2006 in “San Pietro Piturno”. San Pietro Piturno (SPP) is a small neighbourhood of 1300 people in Putignano Municipality (that is one small municipality of Puglia Region, Southern Italy). SPP is a neighbourhood with a difficult social context and with serious problems of social integration and exclusion.

The participatory planning process started from the Municipality will to involve SPP inhabitants in the design of a project of renew and rehabilitation for SPP. The project was then supposed to be consigned to the National Government in order to be evaluated and, eventually, founded.

The participatory process was carried out by ISF (which stands for Engineers Without Frontiers). ISF is an association of social promotion for enhancing cooperation and development. ISF organized the participatory phase in two face-to-face meetings with the local community.

The first meeting was a brainstorming meeting in which a group of citizen (about 50 people) were asked to think about the main problems and needs of the neighbourhood. While in the second meeting they have been asked to think about resources and opportunities of their neighbourhood. The meeting mediator was an architect (from the department of Urban Planning of Polytechnic of Bari), and she was part of the team assigned from the municipality to draw up the project.

In the real case study the project team had not tools to support multiple perspectives views and assist the debate. So the face-to-face meetings have been carried out without a particular focus and without any kind of support. ISF group has worked with post-it in on a wall panel. Then post-it contents have been interpreted and transcribed in a final report that constitutes the participatory process results.

After this participatory experience in SPP, SPP municipality appointed the same planning teem to draw up the PIRP that is the general Integrated Programme of Regeneration of urban suburbs (Periphery) for the area of SPP. This is an Urban Plan that is supposed to affect the future of the area in a longer-term period.

ISF team was again in charge of the participatory phase. Thereby the team had to face the need to reuse and structure the materials and contents of the past meetings with the same neighbourhood in April 2006.

4. The problem

All that ISF team could do was to relay on the final report, on the videos of the meetings and on the memories that participants had about the process. Some team members who participated to the previous project had left the organization, therefore further knowledge about the process was lost.

The final report consisted of a mix of knowledge from the community and knowledge form ISF group about the participatory process itself, and it was quite difficult to distinguish between the two.

ISF president, who was the meetings' moderator in SPP project, reported during an ad-hoc interview we made her, that ISF members got to understand to a deep extent SPP community. They experienced conflicts, listen to people stories, listened to people complains and needs. They discussed with the children about the way they see their neighbourhood and then discovered how they would like to transform it.

All this experiences converted in personal knowledge of ISF group about SPP. These were the experiences and this was the knowledge base, which informed their report. But the point is: how? How all this complex and rich knowledge 'magma' converted in the report? What have been lost? And where is this knowledge stored?

Every project member owned a knowledge fragment that very likely he didn't shared with the group and, even less likely, ended-up in the final report. Too often the knowledge gathered during participatory process remains tacit, hidden in the memory of the people involved in the process. A large body of knowledge remain unexpressed - in example 'social' knowledge about the people that created conflicts, or people that offered original ideas, people who solved problems or people who gave unexpected resources.

Participatory processes are social processes which generate reach knowledge about the 'places'. That is in our case knowledge about SPP neighbourhood with his community, its people and problems. This knowledge remains tacit and unshared in the memories of the participants. The only outcome that last is a textual report enriched with a few pictures that is just a small part and synthesis of all the knowledge gathered during the process. Thereby the question is how can we track, store and represent the group memory? The main aim for a group memory support system for participatory planning is to trace knowledge about the social process so that this is not fragmented and lost in the memories of participant but it becomes a collaborative-project memory that can be re-used afterward. A collaborative-project

memory system is an environment to track, store and share knowledge and understandings about the planning process making it explicit and reusable. Furthermore the activity of project memory building is a group activity of expressing personal knowledge and understanding and to sharing it with the group.

In the present case we couldn't trace the whole project memory because the project was already concluded, but we focused on the consultation meetings with the local community, of which the videos of the meetings was available.

We used an hypermedia visual Knowledge Management system (Compendium) for post-hoc reconstructing of the group memory.

Compendium has been used to structure and represent knowledge about the participatory process in its wide and diverse dimensions. This knowledge about the process represents the collaborative-project memory and it allows users (both ISF groups and SPP community) to navigate into the contents and interpret the history of the meetings.

5. How do we tackle it: an Information-Processing Approach

We used Compendium to map the flow of the meetings' discussions. We transcribed the videos and then analysed meeting discussions with an information processing approach. As argued by Smithers working with AI-approaches result in a profound insight in the domain under consideration (Smithers et al. 95). Thereby the first reason for choosing a knowledge engineering approach is to better learn and gain insides on the issue of gathering knowledge from participatory planning processes. Our knowledge engineering process is consisting of three phases: information processing (information fragmentation and indexing), information structuring and knowledge representation. In this paragraph we describe the first phase of information processing.

Our information chunks are the claims. A claim can be a single word or a phrase or even a discourse. It is defined as a meaningful part of discourse that can be referred to one author. The initial word of a claim corresponds to the action of one person starting to talk and the final word can occur: i. when the person finishes to express his thought, ii. when anther person intervene raising another claim for clarification, opposition or answer, iii. when an unexpected event occur.

Furthermore a claim is transcribed and considered an information chunk when it is a meaningful expression of an idea. This means that not every single word is transcribed but just relevant concepts. That are, concepts relevant for the meeting objective and/or relevant to reconstruct the discussion flow.

As we can see from the annotation schema (Fig.2) a claim is annotated according to three semantic dimensions expressing: function of the claim within the discussion (task within the discussion); role played by the claim against the overall project/meeting objective (task within the project); author of the claim (source).

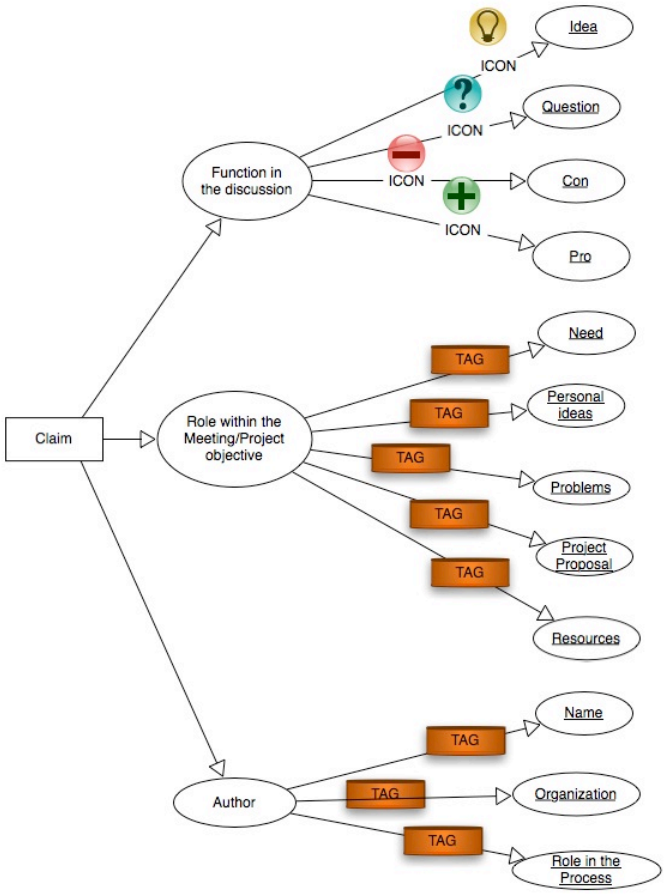

Fig.2: Annotation schema

We used two annotation methods: Tagging and icon association. In the following we'll describe one by one the annotation procedure and methods for each semantic dimension associated to claims.

5.1 The first semantic dimension: Role of the claim within the discussion

For the first semantic dimension, which expresses the function of the claim within the discussion, we followed an IBIS (Issue, Based Information System) argumentation model. The IBIS model was first introduced by Kunz and Rittel (Kunz & Rittel 1970)

Furthermore Begeman and Conklin developed gIBIS, a graphical version of IBIS, gIBIS then evolved in Compendium. Compendium is a hypermedia environment for structuring and visualizing multimedia information in a graph like structure. It support IBIS argumentation model to represent and structure discussions. In our application we uses a specific classification scheme to organize the data. The classification scheme consist of five main node types (issues, positions, arguments, pro, con and decision) and several link types (responds-to, questions, supports, objects-to, specializes, generalizes, about, is suggested by, etc). Nodes and links are defined to follow the classification scheme specified in fig.3.

Compendium assists the users with a user friendly interface representing discussions in a IBIS model. Compendium tends to simplify for the user the representation of real discussion where it is often unclear whether a claim is in favor or against. The mapping expert can add notes or comment to the discussion. Furthermore

Compendium model support decision-making oriented meetings, underlying when decisions occur in the discussion flow.

In our case we used an IBIS model to represent discussion in Compendium system and in addition we used decision 'nodes' to represent when decisions occurred within a meeting.

As you can see decision icons are not included in the information-processing schema. That's because decisions are not considered claims, they are events happening when an agreement occur between participants about a certain issue. Therefore decisions are events recorded by the knowledge manager while proceeding in the knowledge processing or afterward during the knowledge exploration and extraction phase.

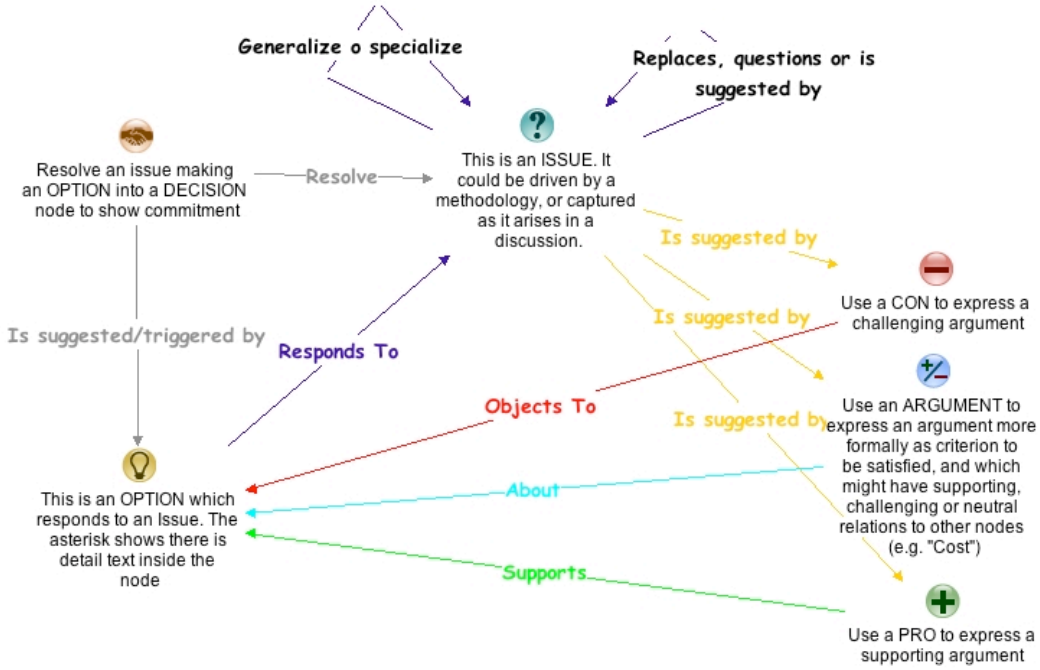

Fig.3: gIBIS model modified from Conklin and Begeman (Conklin and Begeman 1988)

In the first annotation process we associated to each claim the appropriate icon which represents the role of the claim in the discussion according to the classification schema. Furthermore the claim are linked with the appropriate claims according to the classification schema. The result is a graph representing the discussion. The user can reconstruct the discussion flow by performing three cognitive actions: recognizing the meaning of the icons, following the links direction and reading the link label. This process allows the users to reconstruct the discussion flow focusing on argumentation dynamics (Argument pro and con), and monitoring the discussion evolution from the issues to the agreements (decision nodes).

5.2 *The second semantic dimension: Role of claim against meeting objectives*

The second annotation procedure regards the role of the claim in the meeting and the function it can play when analysing meeting outcomes in relation to the specific meeting objective. This annotation aims to make explicit how the information can

contribute to the meeting objective. In our case the meetings had the objective to gather information about needs and problems of the neighbourhood.

Instead of using needs and problems as tags we have enriched the classification to four categories: problems, needs, personal ideas and project proposal.

The need to distinguish between problems and needs bases on the following considerations:

If a participant is aware of the problem and have some idea about how it can be solved (or how he/she'd like it to be solved) we can suppose he will express the issue in terms of need (I.e. We need a bus stop close to the neighbourhood!).

If the need is clearly expressed and it is legitimate, is then an issue of how and when the municipality is going to solve it. On the other hand if a need is clearly expressed but not legitimate, is then an issue of how to argue and explain that this claim is not legitimate. In both cases the expressed need unhide a policy issue.

On the other hand if a participant has clear the problem but he hasn't got any ideas of how it can be solved, the claim will be stated in terms of problem (I.e.: there is not visibility at the junction with the main road!). Therefore these claims ask for technical skills and expert studies in order to be addressed.

During the results analysis, this distinction can help planners in making a distinction between technical and policy-making issues.

The other tags distinguish between open ideas and project proposals. The tag "personal idea" refers to claims that express specific ideas about the project such as design priorities and alternatives. The tag "open ideas", refers to ideas spontaneously raised during the discussion. These claims are related to argumentative dialogue more then directly referred to the general project. 'Open ideas' are used to negotiate meanings or to share narratives or information with the group during the discussions. In addition suggestions and proposal that are not answers to specific questions posed by someone, have been also tagged as 'Open ideas'. Those are spontaneous claims or proposals raised by participants, those are non antagonistic to any other claim, nonetheless if the open idea doesn't trigger a new issue or discussion this can imply three king of positions of the group around the claim: i. consensus; ii.Scarce interest; iii.Scarce knowledge about the topic. At this point is up to the moderator to pose critical questions in order to discover what is the case, and to discover new knowledge about the way in which the group look at that claims.

If the information processing is carried out in the on-going process the moderator can play a key role in disclosing tacit knowledge from the group during the meetings. He can then suggest critical questions in order to make this knowledge explicit. Dialogue mapping techniques can offer a valuable help to gather tacit knowledge and to. An expert dialogue mapper can help identifying misunderstanding and can assist the group to overcome issues thus preventing conflicts.

Nonetheless in our application we focus on post-hoc knowledge management and knowledge representation activities in order to louse knowledge about the project as a social process.

The second annotation process can support the identification and synthesis of relevant knowledge for the specific project objective at stake. I addition the second annotation process can also help detecting tacit knowledge

5.3 The third semantic dimension: the author of the claim

The third annotation regards the source of the claim. Each claim is annotated with:i. the name of the participant who raised it, ii. his organization of affiliation and iii.the role plaid from the participant in the planning process (i.e. member of the community, expert-teams' member, representative of an institution or agency etc).

This third annotation focuses on the organizational impact of claims. In order to understand why considering an organizational focus is important we should do a step backward and think about what actually happens in the early stages of a planning process. When a planning process starts objectives and design strategies are pointed out by the planning team and a first distribution of roles and tasks starts to emerge. Several organizations start being involved in the process. Each professionals involved in the project has an affiliation. Furthermore any other institutional and non-institutional organization which has a stake in the process is usually involved to discuss strategic lines, rules, schedules, overall objectives and constraints as defined within the call for bid. The all set of organizations involved directly and indirectly in the project start to be defined and a new emerging organization take form around the planning process. This organization includes members from different affiliations, which are then grouped in new project teams. In these teams each member has a new and specific role that is his role in the emerging organization.

As a result, each stakeholder plays two roles, one in the organization of origin and another one in the new emerging organization. Distinguishing between these roles is important in order to understand the expertise that each member has and the organizational network he can reach. Indeed, this second aspect can play an important role when thinking about: i.what organizational resources the member can access and potentially use during the project; and ii. what snowball effects he can generate when delivering project results.

Given this understanding, the third annotation process helps tracing and exploring the organizational implications of claims both within the discussions and in the broader context of the project.

6. The Information Architecture

The videos of the consultation meetings have been transcribed, the transcript has then been decomposed in information chucks (the claims) and each chunk has been annotated according to the annotation schema and annotation methods described in the previous paragraph. The information processing and the annotation schema represent the framework we developed for Compendium to capture relationships between the planning process and the knowledge resources used for making the planning design-decisions. These knowledge resources are project proposals, expressed needs, people and organization involved etc. We showed how it is possible to extract and gather this knowledge processing, annotating and interpreting the claims raised during the consultation meeting (information chunks).

Now we have to organize and represent this information in order to represent and reconstruct the group memory of consultation meetings, so that this memory can be explored and interpreted both from the community and from the planning team.

At the end of the information-processing phase all meeting contents are grouped in a single map. In order to make the contents understandable and exploitable from the user, we structured the hypermedia database according to the following information architecture (Fig.4).

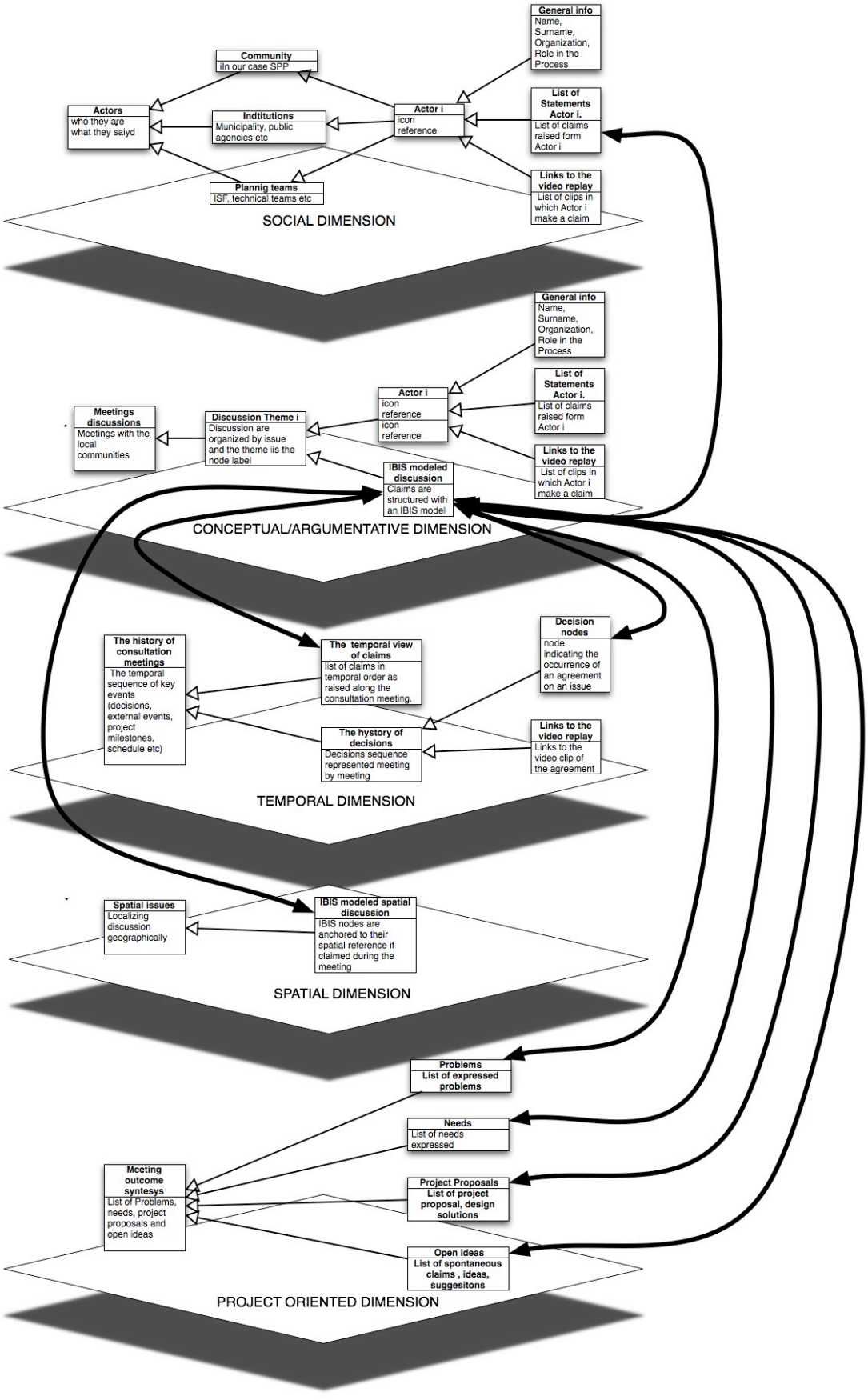

Figure 4: Information architecture

In the temporal context claims are organized by temporal occurrence within the meetings. In addition in the temporal dimension, the participatory process history is represented as a sequence of salient events such as: decisions, project milestones, external events and project schedules.

The spatial dimension represents spatial claims (in a IBIS model, that is to say as issues, questions, pro con etc) anchoring and visually overlapping them to the geographical map of interest.

The hypermedia database allows performing explorations which 'traverse' the different contexts. If we look at the information architecture (Fig. 4) the bold curve lines represent links across different dimensions. This links across contexts augment the number of paths that the user can chose to rich the same information. This should, at least hypothetically, augment the probability for the user to reach the information he needs to tackle his problem.

7. Results of the group memory reconstruction

Compendium has been applied as Hypermedia environment to help ISF and the Planning Project team in charge of the project to capture, index, map and visualize connections between information, issues, options and arguments generated and raised throughout the consultation meetings. In the previous paragraphs we described the information processing and information architecture used to capture, index and represent information chunks (claim) in the hypermedia database.

Each claim (where and when possible) has been represented in the five dimensions discussed in the previous paragraph. In the following pictures we show some examples of the five contextual views.

Figure 5. gives un example of conceptual dimension: a meeting has been structured and represented with the IBIS model of argument visualization. IBIS icons make sense of the argumentative role of the statements in the IBIS syntax, and help reconstructing the argumentative chains within the general discussion.

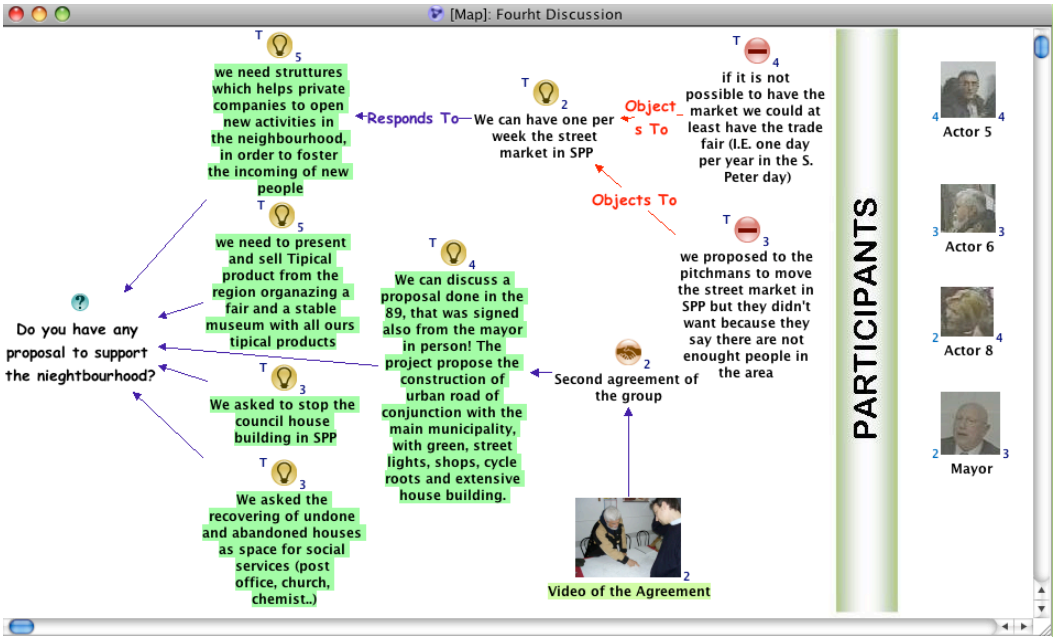

Figure 5: Conceptual/Argumentative dimension: IBIS map summarinzing a discussion within a meeting

On the right part of the image we can identify participants to the meeting, each of them is associated with a node icon with his picture, that is actually a MAP node. Clicking on the picture/node we follow the hyper-link to a 2D space. This new 2Dspace is the 'personal information' space about the stakeholder. The 'personal information' space can be easily accessed both from the conceptual view and from the social view, so that the browsing of the spaces is multiple and transversal. In Figure 6 we give a an example of this transversal navigation through different views.

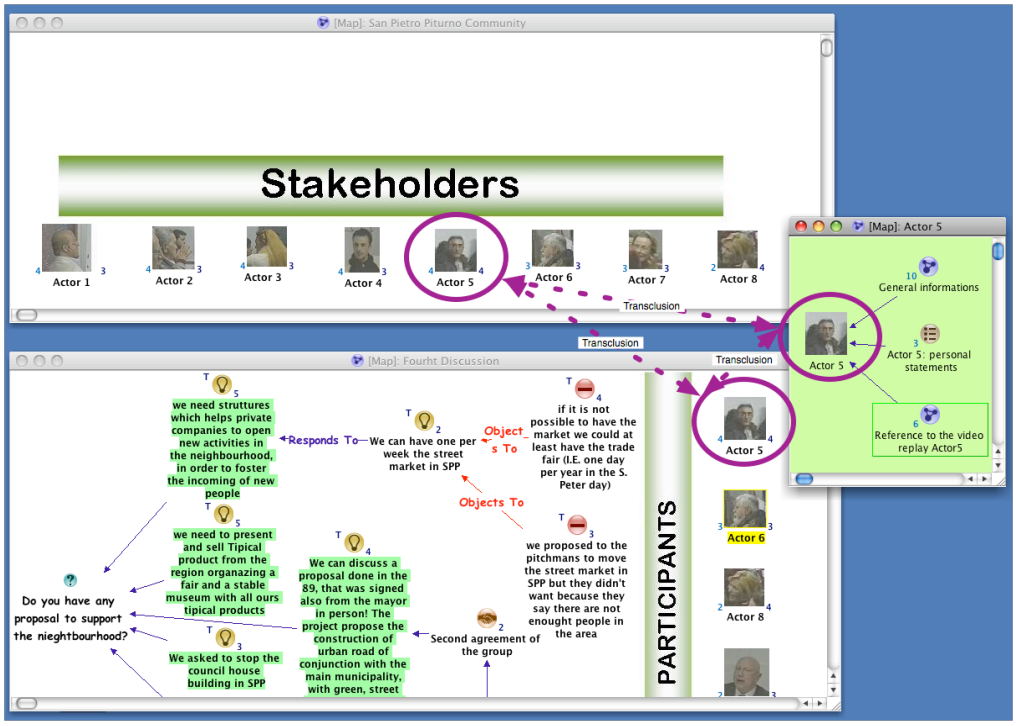

Figure 6:Visualization of the same node in three views within the conceptual and social dimensions.

In this Figure the node related to "Actor 5" (and associated to the actor's picture) is transcluded in three views: The 'conceptual' view (that is the IBIS map which include on the right the participants list) the 'community stakeholders' view and the 'personal information' view. The last two views are part of the social dimension views that are better described in Figure 7.

In the social dimension views, stakeholders are organized in groups, according to their organizational affiliation (community, technical or institutional level). Moreover double clicking on the icon showing the picture of stakeholders we can access 'personal information' view. That gives: general information about the stakeholdes, list of statements raised by him during the meetings and references to video replays of meetings.

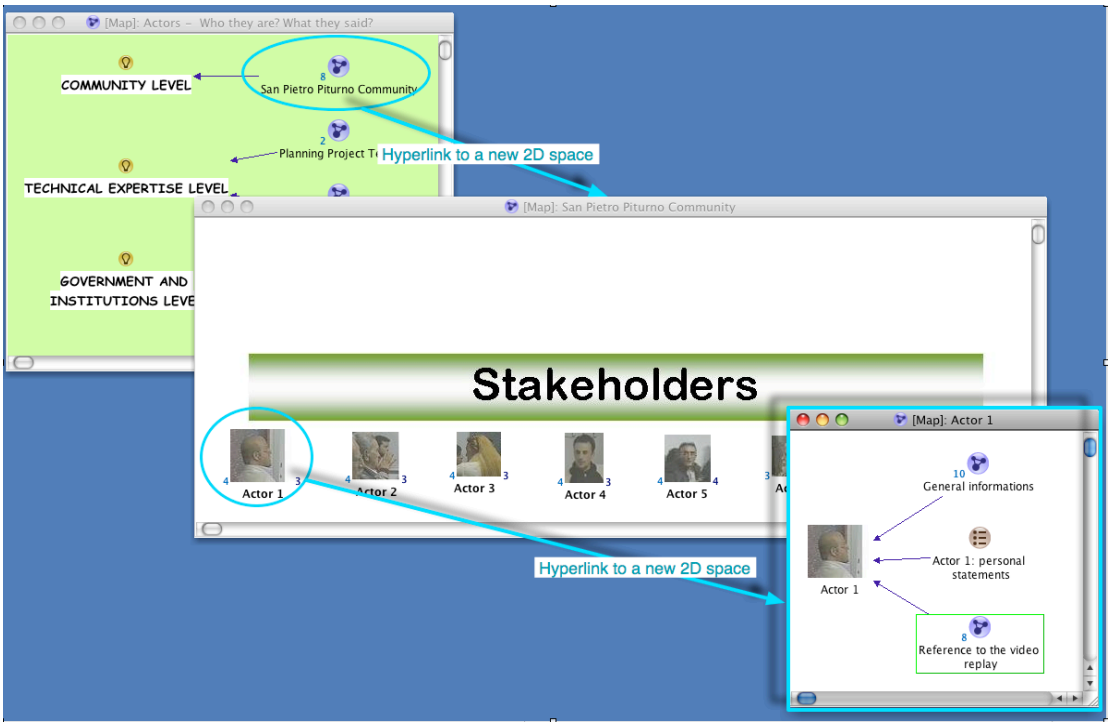

Figure 7: Social level, knowledge objects organized by stakeholders and organizational levels.

8. Evaluation and Conclusion

The phase of knowledge indexing, structuring and representation has been followed from a first evaluation of the system expressive capability. Two interviews have been driven with key actors in the consultation process: the consultant of the municipality, which was at the same time coordinator of the Planning Project teams, and the ISF director in charge of the meetings moderation. Initial reactions have been favourable.

The interviews aimed a collecting preliminary reactions to the system expressive abilities then going in death to explore point of straight and weaknesses of the project memory representation. Furthermore a questionnaire has been distributed to ISF group in order to trigger off new feedbacks and ideas from the group about: How the group memory system could be improved, adding new views or changing the existent ones, or adding new functionality to the system?2)How easy is to understand the system contents and objectives? 3) Single knowledge Manager versus collaborative management of the system?4) Which are the main uses of such a kind of system and the main areas of interest for planning practice?

The interviews results show that the consultant envisions to use the tool to build and explain the cognitive links between consultation results and technical choices. He suggested that this ability could help to make visible and transparent the planning process in the final decisions. On the other side ISF team was enthusiastic about using the tool to structure and reuse materials from past meetings with the community, using those as starting point for the following of the planning process.

Furthermore results of the interviews and analysis of the questionnaires trigged new reflection on limits of the system in representing the decisions rationale. If from one side the meeting contents are well contextualized within the meeting discussions and

discourse flow, it is still not evident how meeting results and decisions converts in design decisions. The design rationale dimension has been identified as key from one of the key actors and but it is missing in this first application. Further efforts will be devoted to design a revised model of the information architecture to represent the design rationale dimension.

The application presented in the paper showed that Compendium can be used to track, index, structure and represent meeting discussion. These are key applications of knowledge management, since they enhance the extraction and structuring of explicit and tacit knowledge from meetings and they allow storing this knowledge for further use. The meeting contents trace the collaborative project memory thus building a project repository of best experiences and practices.

We argue that both the on-going process and subsequent projects can benefit from previous planning experiences in several ways:

- by reusing the knowledge captured in the repository
- by reflecting on the social process going on around the process
- by reflecting on decisions,
- by monitoring decisions effects
- by building a knowledge base to inform planning action and to evaluate design decisions results
- by locating similar projects thus reckoning best practices, suitable theories, methods and/or tools to be applied in new planning cases.

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